



# NANOTECHNOLOGY

Oakland County, Michigan

### **Nanotech companies who have made their home in Michigan (partial list):**

Adaptive Materials      Black = Oakland County  
ADCO Circuits      White = Southeast Michigan  
Advanced Sensor Technologies  
Allurum Institute  
American Systems Technology  
Apolife  
Applied Diagnostic Solutions  
Ardesta Integrated Systems  
Argus Group  
Assay Designs  
Asterand  
Barton  
BASF Corp  
Bio Nano  
Brandish Technologies  
Clark-MXR  
Cleantech Venture Network  
Cybernet Systems Corp  
Delphi  
Dendritic Nano Technologies  
Dexter Research Center  
DaimlerChrysler R&D  
DNA Software  
Dow Chemical  
Dow Corning Corp  
E2M Corp  
Eaton Corp  
EcoSynthelix  
Energy Conversion Devices  
Ford Motor Company R&D  
Futuristic Design International Corp  
General Dynamics  
General Motors R&D  
Gyricon  
HandyLab  
IMRA America  
Integrated Sensing Systems (ISSYS)  
Intermedia  
Internei2  
Iso Systems  
Kelly Scientific Resources  
Key Safety Systems  
LMI Technologies  
Mayamaterials  
Michigan Aerospace Corp  
Mobius Microsystems  
Molecular Therapeutics  
NanoBio Corp  
Nonocerox  
NanoCure Corp  
NanoMed Pharmaceuticals  
Nanometal  
NanoScience Engineering Corporation  
NanoTEN  
Nitrate Elimination Company  
Noble Polymers  
Osmic  
PICOAL  
Q Ltd  
RHK Technology  
Robert Bosch  
Rubicon Genomics  
Saline Lectronics  
Sensicore  
Sunset Total Solutions  
Synepics  
T/J Technologies  
Tellurex Corp  
TiniLite Corp  
Translume  
Troy Polymers  
United Solar Ovonic  
US Army Tank-Automotive & Armaments Command  
Velcura Therapeutics  
VTI Technologies  
X-Rite

## **Oakland County Supports the Nanotech Industry**

**More than 1/3 of the state's R&D facilities are located in Oakland County.**

**Michigan ranks 2nd in the nation in R&D spending.**

**Michigan companies file over 3,000 patents a year – placing Michigan in the top 10 states for total number of patents granted.**

**Michigan ranks 5th in the United States for the development of micro and nanotechnology.**

Organizations available to Oakland County nanotech companies to help them succeed:

- Automation Alley – Southeast Michigan's regional technology cluster
- Small Tech Association
- Michigan Research Institute
- Michigan Molecular Institute
- NextEnergy
- Core Technology Alliance
- Nanoscience Center
- Nanotech Institute

## **Workforce: Educated, Innovative & Motivated**

- Over 40% of Oakland County residents have college degrees (national average is about 26%)
- Oakland County has the 3rd highest number of high-tech workers in the nation and twice the corporate R&D professionals compared to the national average.
- Population of workforce: 5.1 Million
- 15 public universities, 50+ independent universities and colleges, 29 community colleges
- Over 96,000 college degrees are granted every year in Michigan – that's almost twice as many as the national average
- 2 ½ times the number of masters degrees were granted in Michigan than the national average
- Close to 1,500 PhDs a year are granted in Michigan every year – that's almost twice the national average.
- Michigan is 3rd in the nation with the number of engineering degrees issued (last year, 4,352 bachelor degrees in engineering were granted)

## **Access to Venture Capital**

In four years alone, more than \$694 million in venture capital has been invested in 101 businesses in Michigan. For new emerging technology initiatives, including biotechnology and pharmaceutical companies, Michigan has created the \$150 Million Venture Michigan Fund to catalyze investment in early-stage firms operating in Michigan. With the matching requirement, this initiative will attract an additional \$450 million in capital to Michigan for investment in promising new companies.

Michigan companies are poised to profit from an increasingly stronger venture capital (VC) and growth capital market. The region is unique in that it combines a strong R&D base with a strong and diverse customer base for innovative technology products and services. The high technology orientation and global scope of these entrepreneurial companies is leading to wealth creation and the region's growth of exciting new companies making their home in Michigan. These innovative start-up companies are an attractive investment target for the region's VC firms and the co-investors drawn to them from the rest of the country.

# Michigan Universities: Nanotechnology Research Centers

## Central Michigan University

Dendrimer Nanotechnology Research Laboratory  
Center for Applied Research and Technology – Advanced Nanoscale Research

## Western Michigan University

Nanotechnology Research & Computation Center

## Wayne State University

NanoBioScience Institute  
Smart Sensors & Integrated Micro Systems Clean Room Physics & Astronomy Lab

## Oakland University

Nanotech Institute

## University of Michigan

Center for Biologic Nanotechnology  
Nanotechnology Institute for Medicine and the Biological Sciences

## Michigan State University

Micro & Nano Engineering Center  
Nanoscale Interdisciplinary Research Team  
Institute for Quantum Sciences  
Keck Microfabrication Facility  
Center for High-rate Nanomanufacturing  
Composite Materials and Structures Center  
Center for Nanostructured Biomimetic Interfaces

## Michigan Technological University

Multi-Scale Technologies Institute

## Kettering University

Crash Safety Lab

## Grand Valley State University

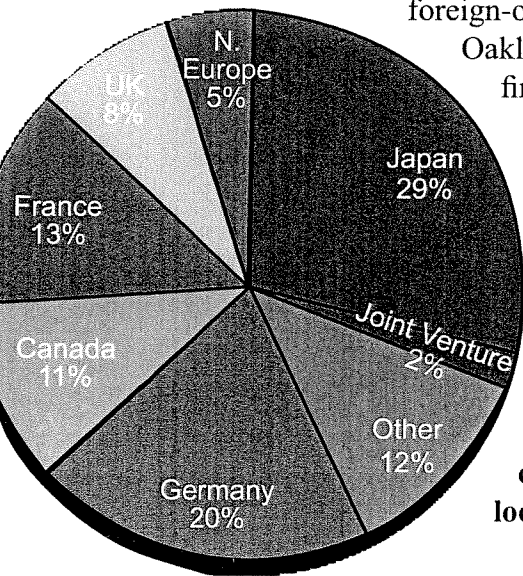
Michigan Small Business & Technology Development Center

## Oakland Community College

Customized Nanotech Programs for companies

# Oakland County is an International Hub

Foreign firms make the strategic decision to locate in Oakland County because of the highly skilled workforce, strong educational systems, and the international support businesses and services available to them. There are 648 foreign-owned firms from 24 countries are in Oakland County. The largest number of firms are from these countries:



- Germany
- Japan
- France
- United Kingdom
- Canada
- North Europe

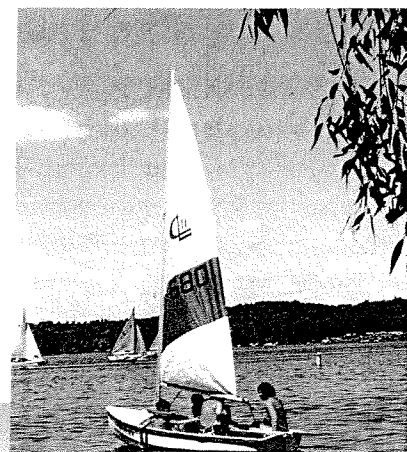
259 of these firms came to Oakland County in the last 12 years – that’s an average of nearly **two foreign companies a month opening up a location in Oakland County.**

## Research projects currently taking place at Michigan Universities:

- Atomic Force Microscopy to discover porosomes
- Using nanotechnology for immobilization and removal of contamination from soil and water
- Micro/nano-scale photonics
- Laser physics
- Optoelectronics and integrated optics
- Molecular electronics and sensors
- Development of ion beam techniques for layer splitting of oxide materials
- Ultrafine-grained and nanostructured ceramics
- Microelectromechanical system design and fabrication technology
- Solid-state and microsystem device design
- Integrated circuit fabrication technology
- Biomedical electronics
- Nanoemulsions
- Radioactive nanocomposites to treat tumor microvasculature
- Microenvironmentics
- Use of PARTCELL to study subcellular EGF signaling
- Disposable fluorescence-activated cell sorters (FACS)
- Optically induce and detect quantum coherence in an extended structure
- Agrifood Nanotechnology
- Atomic clusters
- Nanotube-based computer memory
- Nano Velcro
- Dendritic nanotechnologies
- Military equipment & gear that heals injured soldiers and protects from chemical and biological weapons
- Amorphous semiconductor materials research
- Molecular valves and spintronics
- Nanoelectronics and connections
- Carbon-based nanoelectronics
- Ion beam nanofabrication
- Nanomaterials properties and structure characterization
- Cellular manufacturing
- Using microarrays to look at environmental exposure
- Structure of nanocrystals
- Synthesis, characterization and modeling of nano-structured materials

## **Oakland County: Definitely a High Quality of Life**

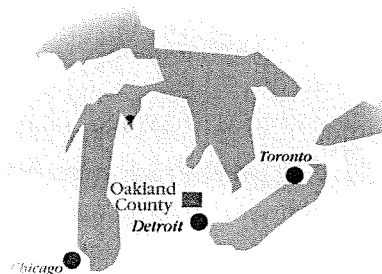
Over 1,400 lakes, more than 89,000 acres of parkland, shopping, sports, cultural activities, education, medical care, neighborhoods where you can walk – all this adds up to livable communities where you can grow your business, raise your family, build a home, or find many ways to spend your leisure time. Whether it's fishing, golfing, boating, volunteering, or just enjoying a sunset, you're sure to find what you need in Oakland County.



## **Oakland County can Help Your Business**

The Economic Development office offers companies these valuable resources:

- Site location coordination (including arranging a confidential site tour for you)
- Financing assistance (including the SBA 504 Loan Program)
- Tax incentive/abatement coordination
- Liaison with state and local agencies
- Workforce development resources
- Business Assistance Center (business consulting)
- Export assistance (including trade mission coordination)
- Information products – to ensure you make the right decision for your company's location



**L. Brooks Patterson**  
Oakland County Executive

### **Contact us today for more information:**

Oakland County Planning & Economic Development Services

1200 N. Telegraph Road, Dept. 412

Pontiac, MI 48341-0412

Phone: (248) 858-8706

Fax: (248) 975-9555

[www.co.oakland.mi.us/peds](http://www.co.oakland.mi.us/peds)

Email: [spanose@co.oakland.mi.us](mailto:spanose@co.oakland.mi.us)

Oakland County's Nanotech Contact: Irene Spanos



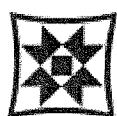
## Beaumont Hospitals®

The Beaumont Hospitals include more than 2,400 private-practice physicians, two hospitals with five medical office buildings, a rehabilitation and health center, primary and specialty care clinics, four extended-care centers, a research institute, home care and a hospice. Beaumont's 1,061-bed hospital in Royal Oak is a major teaching and referral center with Level I trauma designation. It ranks third in the nation for inpatient admissions and second for total surgeries. Beaumont's 254-bed acute-care facility in Troy is among the nation's leading community hospitals, ranking ninth in the nation for inpatient admissions and first for total surgeries among hospitals in its bed-size category. [www.beaumonthospitals.com](http://www.beaumonthospitals.com)

## DELPHI

Medical Systems Corporation

Delphi Medical Systems is a world-class provider of technology, products, and product development and manufacturing for respiratory care, IV infusion, vital signs monitoring, dialysis equipment, in-vitro diagnostics and surgical / hospital equipment. Its capabilities stem from Delphi's vast technology base, product development expertise and manufacturing excellence. [www.delphi.com](http://www.delphi.com)



## Spectrum Health

Spectrum Health is a community based, not-for-profit health system in West Michigan that offers a full continuum of care through its seven hospitals and more than 140 service sites. Our 12,000 employees, 1,400 medical staff members and nearly 2,000 volunteers are committed to delivering the highest quality care to those in medical need. We provided \$72 million in community benefit during our 2004 fiscal year. Spectrum Health has earned numerous national awards and was included in Verispan's listing of top 100 Integrated Healthcare Networks. For more information, visit [spectrum-health.org](http://spectrum-health.org). [www.spectrum-health.org](http://www.spectrum-health.org)



## Van Andel Institute®

Advance. Explore. Educate.

The Van Andel Research Institute is a 501(c)(3) non-profit independent biomedical research organization, endowed in part by the Jay and Betty Van Andel Foundation. The Institute is committed to becoming one of the world's preeminent research institutes dedicated to improving human health. The initial focus of the Institute centers on cancer research; the team of scientists recruited to the Institute is building programs in the basic sciences related to improving the understanding of cancer. The scientific team is also making a long-term commitment to the development of programs that facilitate the translation of these discoveries into diagnostic and therapeutic strategies for improving human health. [www.vai.org](http://www.vai.org)

**William Beaumont Hospital & Spectrum Health**  
Present

# **“Emerging Medical Technologies in Michigan - A Business Opportunity”**

**June 14, 2005 – New York Marriott Marquis – Manhattan, NY**



**Van Andel Institute®**  
Advance. Explore. Educate.

**Beaumont Hospitals®**

**DELPHI**  
Medical Systems Corporation

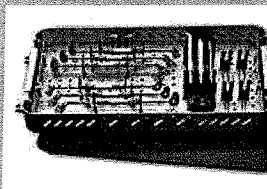
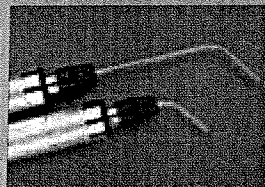


**Spectrum Health**

## **Panel Discussion Breakfast**

### **AGENDA**

- 8:00 a.m. Welcome: Michigan Overview– Breakfast Served  
**Kathy Blake** – Sr. Vice President – **Michigan Economic Development Corporation**
- 8:05 a.m. Emerging Medical Technologies: “Industry Trends for the Region”  
**Christophe J-P Sevrain** – Managing Director, **Delphi Medical Systems**  
**Craig P. Webb, Ph.D.** - Scientific Investigator, Laboratory of Tumor Metastasis and Angiogenesis, and Director, Multiple Myeloma Research Laboratory - **Van Andel Research Institute**
- 8:40 a.m. Medical Supplier Opportunities: “What Michigan Hospitals are looking for in New Vendors”  
**Mike Tanner** - Director, Value Analysis and Implant Research  
**Beaumont Hospitals**  
**Thomas J. Monroe, Ph.D.** - Director, Molecular Biology Molecular Diagnostics Laboratory - **Spectrum Health**
- 9:15 a.m. Economic Development Services: “Services, Incentives & Benefits That Michigan Offers”  
**Mark Adams**, Chair - **Michigan Global Partnership**
- 9:20 a.m. Question & Answer



Learn more about the growing medical technologies in Michigan and the trends that are emerging. Learn how to become a supplier to the state's medical institutions and get to know the purchasing managers at two of the largest medical centers in the state. Reserve your seat today!

***Seating is Limited***

**Registration Deadline:**  
**May 13, 2005**

### **TO REGISTER:**

**COMPLIMENTARY ADMISSION**

Complete form below and

**Mail to:** Jill Murphy

Michigan Economic Development Corporation

300 N. Washington Sq

Lansing, MI 48913

or

**FAX to: (517) 241-3689**

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Company: \_\_\_\_\_

Address: \_\_\_\_\_

Phone/ FAX: \_\_\_\_\_

Email: \_\_\_\_\_

*“Emerging Medical Technologies in Michigan – A Business Opportunity”*